Remarks

The Office Action mailed July 6, 2005 has been carefully reviewed and the foregoing remarks have been made in consequence thereof.

Claims 6-8 are now pending in this application. Claims 6-8 stand rejected.

The rejection of Claims 6 and 8 under 35 U.S.C. §102(b) as being anticipated by Kurokawa et al.(U.S. 5,302,795) is respectfully traversed.

Kurokawa et al. describe welding equipment to fabricate a combustor liner 5. The welding equipment includes a liner positioning mechanism 10, a ring positioning mechanism 40, and a diameter enlarging mechanism 50. The diameter enlarging mechanism 50 used to enlarge the diameter of rings 2. A ring 2 is set on an expanding head 51 of the diameter enlarging mechanism 50 and primarily expanded to be completely fixed to the expanding head 51. The ring 2 then undergoes a secondary expansion, wherein the ring 2 is plastically deformed, until the spacing between the inner peripheral surface of a liner body 1 and the outside peripheral surface of the ring 2 is closed to within 0.1 mm. The liner body 1 and the ring 2 are then subject to spot welding by a spot welding mechanism 70. The resultant combustion liner 5 is then brazed. As stated at Column 6, lines 40-46, "a good heat transfer is required between the rings 3 and the liner body 1 . . . For this purpose, each ring 2 and the liner body 1 needs to be reliably brazed over the whole circumference." Therefore the technique as revealed in this embodiment is very important. Notably Kurokawa et al. do not describe a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Claim 6 recites a method of assembling a combustor liner, comprising "providing a plurality of annular bands disposed about a central axis, each of said bands having a forward and an aft end . . . positioning first and second ones of said annular bands in an overlapping relationship relative to each other, so as to define a circumferentially extending joint area . . . directing a laser beam at said joint area at a first axial position and concurrently rotating said first and second annular bands about said central axis so as to expose the entire circumference of said joint area to said laser beam, whereby a first weld bead is formed . . . directing said laser beam at said joint area at a second axial position while rotating said first and second annular bands about said central axis so as

to expose the entire circumference of said first joint area to said laser beam, whereby a second weld bead is formed, said second bead at least partially overlapping said first weld bead."

Kurokawa et al. do not describe or suggest the method of assembling a combustor liner as described in Claim 6. Specifically, Kurokawa et al. do not describe or suggest fabricating a combustor liner by directing a laser beam at the joint area at a second axial position while rotating the first and second annular bands about the central axis so as to expose the entire circumference of the first joint area to the laser beam, whereby a second weld bead is formed partially overlapping the first weld bead.

Rather, in contrast to the present invention, Kurokawa et al. describe applying a single weld to the combustor and then brazing the liner to complete the fabrication of the combustor liner. Moreover, Kurokawa et al. describe at Column 6, lines 40-47 that the liner body "needs to be reliably brazed" and that "the technique as revealed in this embodiment is very important." Accordingly, Claim 6 is patentable over Kurokawa.

Claim 8 depends, directly or indirectly, from independent Claim 6. When the recitations of Claim 8 are considered in combination with the recitations of Claim 6, Applicant submits that dependent Claim 8 likewise is patentable over Kurokawa.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 6 and 8 be withdrawn.

The rejection of Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Kurokawa et al. in view of Falls et al. (U.S. 5,375,420) is respectfully traversed.

Kurokawa et al. is described above. Falls et al. describe a double-annular combustor 10 for use in a gas turbine engine. The combustor 10 includes a hollow body 11 that defines a combustion chamber 12 therein. The hollow body 11 is generally annular and includes an outer liner 13 and an inner liner 14. At an upstream end of hollow body 11 a series of openings 15 enable the introduction of air and fuel. Outer and inner liner dome plates 21 and 22 are positioned between and interconnecting outer and inner liners 13 and 14. Dome plates 21 and 22 form the forward boundaries of separate, radially spaced, annular combustors 23 and 24. A centerbody 50 is between inner annular combustor 23 and outer annular combustor 24 to facilitate the annular combustors 23 and 24. Centerbody 50 conducts the flow of air

rearwardly to restrain the combustive gas of inner annular combustor 23 from entering outer annular combustor 24 and vice versa.

Applicant respectfully submits that obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Kurokawa et al. with Falls et al., or vice versa. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicants." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Furthermore, as is well established, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 221 U.S.P.Q.2d 1125 (Fed. Cir. 1984). Furthermore, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

Further, under Section 103, "it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Accordingly, since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present

invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 7 is patentable over Kurokawa et al. in view of Falls et al.

Moreover, and to the extent understood, no combination of Kurokawa et al. and Falls et al. describe the method of assembling a combustor liner as is recited in Claim 6. Specifically, Claim 7 depends from independent Claim 6 which recites a method of assembling a combustor liner, comprising "providing a plurality of annular bands disposed about a central axis, each of said bands having a forward and an aft end . . . positioning first and second ones of said annular bands in an overlapping relationship relative to each other, so as to define a circumferentially extending joint area . . . directing a laser beam at said joint area at a first axial position and concurrently rotating said first and second annular bands about said central axis so as to expose the entire circumference of said joint area to said laser beam, whereby a first weld bead is formed . . . directing said laser beam at said joint area at a second axial position while rotating said first and second annular bands about said central axis so as to expose the entire circumference of said first joint area to said laser beam, whereby a second weld bead is formed, said second bead at least partially overlapping said first weld bead."

Neither Kurokawa et al. nor Falls et al., considered alone or in combination, describe or suggest a method of assembling a combustor liner as described in Claim 6. Specifically, no combination of Kurokawa et al. and Falls et al. describe or suggest fabricating a combustor liner by directing a laser beam at the joint area at a second axial position while rotating the first and second annular bands about the central axis so as to expose the entire circumference of the first joint area to the laser beam, wherein a second weld bead is formed partially overlapping the first weld bead.

Rather, in contrast to the present invention, Kurokawa et al. describe applying a single weld to the liner and then brazing the liner to complete the fabrication of the combustor liner, and Falls et al. merely describe an alternative centerbody design for use in combustors. As such neither Kurokawa et al. nor Falls et al. describe or suggest a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Accordingly, since there is no teaching or suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present

invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 6 is patentable over Kurokawa et al. in view of Falls et al.

Claim 7 depends on independent Claim 6. When the recitations of Claim 7 are considered in combination with the recitations of Claim 6, Applicant submits that Claim 7 likewise is patentable over Kurokawa et al. in view of Falls et al.

The rejection of Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Kenworthy (U.S. 4,485,630) in view of Falls et al. is respectfully traversed.

Falls et al. is described above. Kenworthy describes an annular combustor 10 for use with a gas turbine engine. The combustor 10 includes an annular, radially outer combustor line 12 and an annular, radially inner combustor liner 14 spaced therefrom. The liners 12 and 14 are disposed coaxially about an engine centerline16 and define boundaries of a combustion chamber 18. An outer casing 20 and an inner casing 22 are spaced from the liners 12 and 14 to define an outer cooling air duct 24 and an inner cooling air duct 26. In order to protect the outer and inner liners 12 and 14 from relatively hot combustion gases 34, annular cooling nuggets 36 are provided in the liners 12 and 14. The nuggets 36 receive cooling air 38 (a portion of compressor discharge air 28), through ducts 24 and 26. The nuggets 36 channel the cooling air 38 in a continuous annular cooling air film 40 along the inner surfaces 42 of the combustor liners 12 and 14. As such, Kenworthy describes a method for reducing the amount of heat transferred from the combustion gases to the combustion liner. Notably, Kenworthy does not describe a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Applicant respectfully submits that obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Falls et al. with Kenworthy, or vice versa. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicants." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Furthermore, as is well established, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the

desirability of doing so. See In re Gordon, 221 U.S.P.Q.2d 1125 (Fed. Cir. 1984). Furthermore, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

Further, under Section 103, "it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Accordingly, since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 7 is patentable over Falls et al. in view of Kenworthy.

Moreover, and to the extent understood, no combination of Falls et al. and Kenworthy describe the method of assembling a combustor liner as is recited in Claim 6. Specifically, Claim 7 depends from independent Claim 6 which recites a method of assembling a combustor liner, comprising "providing a plurality of annular bands disposed about a central axis, each of said bands having a forward and an aft end . . . positioning first and second ones of said annular bands in an overlapping relationship relative to each other, so as to define a circumferentially extending joint area . . . directing a laser beam at said joint area at a first axial position and concurrently rotating said first and second annular bands about said central axis so as to expose the entire circumference of said joint area to said laser beam, whereby a first weld bead is formed . . . directing said laser beam at said joint area at a second axial position while

rotating said first and second annular bands about said central axis so as to expose the entire circumference of said first joint area to said laser beam, whereby a second weld bead is formed, said second bead at least partially overlapping said first weld bead."

Neither Kenworthy nor Falls et al., considered alone or in combination, describe or suggest a method of assembling a combustor liner as described in Claim 6. Specifically, no combination of Kenworthy and Falls et al. describe or suggest fabricating a combustor liner by directing a laser beam at the joint area at a second axial position while rotating the first and second annular bands about the central axis so as to expose the entire circumference of the first joint area to the laser beam, whereby a second weld bead is formed partially overlapping the first weld bead.

Rather Kenworthy describes a combustor liner having cooling nuggets to reduce the amount of heat transferred from the combustion gases to the combustion liner. And Falls et al. merely describe an alternative centerbody design for combustors. As such neither Kenworthy nor Falls et al. describe or suggest a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Accordingly, since there is no teaching or suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 6 is patentable over Kenworthy in view of Falls et al.

Claim 7 depends on independent Claim 6. When the recitations of Claim 7 are considered in combination with the recitations of Claim 6, Applicant submits that Claim 7 likewise is patentable over Kenworthy in view of Falls et al.

The rejection of Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Van Blarigan et al. (U.S. 4,358,658) in view of Falls et al. is respectfully traversed.

Falls et al. is described above. Van Blarigan et al. describe a welding system that enables a workpiece 10 to be welded along a weld line 12 which is intricately and smoothly curved. The welding is performed by a laser beam welding apparatus 14 that concentrates a laser beam 16 onto a small diameter welding spot 18 lying in the weld line 12. The

workpiece 10 includes a jig 24 and an apparatus 30 for moving the workpiece 10 by engaging a lip 32 specially formed on the jig 24 of the workpiece 10. A rotatable member 34 is used to move points along the weld line 12 at a constant speed. As such, Van Blarigan et al. describe a welding system for performing welds along intricately curved weld lines. Notably, Van Blarigan et al. do not describe a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Applicant respectfully submits that obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Falls et al. with Van Blarigan et al., or vice versa. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicants." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Furthermore, as is well established, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 221 U.S.P.Q.2d 1125 (Fed. Cir. 1984). Furthermore, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

Further, under Section 103, "it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Accordingly, since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 7 is patentable over Falls et al. in view of Van Blarigan et al.

Moreover, and to the extent understood, no combination of Falls et al. and Van Blarigan et al. describe the method of assembling a combustor liner as is recited in Claim 6. Specifically, Claim 7 depends from independent Claim 6 which recites a method of assembling a combustor liner, comprising "providing a plurality of annular bands disposed about a central axis, each of said bands having a forward and an aft end . . . positioning first and second ones of said annular bands in an overlapping relationship relative to each other, so as to define a circumferentially extending joint area . . . directing a laser beam at said joint area at a first axial position and concurrently rotating said first and second annular bands about said central axis so as to expose the entire circumference of said joint area to said laser beam, whereby a first weld bead is formed . . . directing said laser beam at said joint area at a second axial position while rotating said first and second annular bands about said central axis so as to expose the entire circumference of said first joint area to said laser beam, whereby a second weld bead is formed, said second bead at least partially overlapping said first weld bead."

Neither Van Blarigan et al. nor Falls et al., considered alone or in combination, describe or suggest a method of assembling a combustor liner as described in Claim 6. Specifically, no combination of Van Blarigan et al. and Falls et al. describe or suggest fabricating a combustor liner by directing a laser beam at the joint area at a second axial position while rotating the first and second annular bands about the central axis so as to expose the entire circumference of the first joint area to the laser beam, whereby a second weld bead is formed partially overlapping the first weld bead.

Rather Van Blarigan et al. describe a welding system for performing welds along intricately curved weld lines. And Falls et al. merely describe an alternative centerbody design for combustors. As such neither Van Blarigan et al. nor Falls et al. describe or suggest a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Accordingly, since there is no teaching or suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 6 is patentable over Van Blarigan et al. in view of Falls et al.

Claim 7 depends on independent Claim 6. When the recitations of Claim 7 are considered in combination with the recitations of Claim 6, Applicant submits that Claim 7 likewise is patentable over Van Blarigan et al. in view of Falls et al.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejections of Claim 7 be withdrawn.

The rejection of Claims 6 and 8 under 35 U.S.C. §103 (a) as being unpatentable over Kenworthy in view of Van Blarigan et al. is respectfully traversed.

Kenworthy and Van Blarigan et al. are described above.

Applicant respectfully submits that obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Kenworthy with Van Blarigan et al., or vice versa. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicants." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Furthermore, as is well established, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 221 U.S.P.Q.2d 1125 (Fed. Cir. 1984). Furthermore, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

Further, under Section 103, "it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Accordingly, since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claims 6 and 8 are patentable over Kenworthy in view of Van Blarigan et al.

Moreover, and to the extent understood, no combination of Kenworthy and Van Blarigan et al. describe the method of assembling a combustor liner as is recited in Claim 6. Specifically, Claim 6 recites a method of assembling a combustor liner, comprising "providing a plurality of annular bands disposed about a central axis, each of said bands having a forward and an aft end . . . positioning first and second ones of said annular bands in an overlapping relationship relative to each other, so as to define a circumferentially extending joint area . . . directing a laser beam at said joint area at a first axial position and concurrently rotating said first and second annular bands about said central axis so as to expose the entire circumference of said joint area to said laser beam, whereby a first weld bead is formed . . . directing said laser beam at said joint area at a second axial position while rotating said first and second annular bands about said central axis so as to expose the entire circumference of said first joint area to said laser beam, whereby a second weld bead is formed, said second bead at least partially overlapping said first weld bead."

Neither Kenworthy nor Van Blarigan et al., considered alone or in combination, describe or suggest a method of assembling a combustor liner as described in Claim 6. Specifically, no combination of Kenworthy and Van Blarigan et al. describe or suggest

fabricating a combustor liner by directing a laser beam at the joint area at a second axial position while rotating the first and second annular bands about the central axis so as to expose the entire circumference of the first joint area to the laser beam, whereby a second weld bead is formed partially overlapping the first weld bead.

Rather Kenworthy describes a combustor liner having cooling nuggets to reduce the amount of heat transferred from the combustion gases to the combustion liner. And Van Blarigan et al. describe a welding system for performing welds along intricately curved weld lines. As such neither Kenworthy nor Van Blarigan et al. describe or suggest a method of fabricating a combustor liner wherein a second weld bead is applied partially overlapping a first weld bead.

Accordingly, since there is no teaching or suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicant submits that Claim 6 is patentable over Kenworthy in view of Van Blarigan et al.

Claim 8 depends on independent Claim 6. When the recitations of Claim 8 are considered in combination with the recitations of Claim 6, Applicant submits that Claim 8 likewise is patentable over Kenworthy in view of Van Blarigan et al.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejections of Claims 6 and 8 be withdrawn

In view of the foregoing amendments and remarks, all the claims now active in the application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

Robert B. Reeser III
Registration No. 45,548
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070